DC-Net Products and Services Guide

For District of Columbia Government

Date: 7/18/2014
Version: 1.4.8

Prepared by:
DC-Net OCTO

DC-NET
District of Columbia Government
Citywide Network

Table of Contents

About DC-Net

DC-Net is a facilities-based Metropolitan Area Network run by the District of Columbia Office of the Chief Technology Officer (OCTO) that provides a full suite of managed, interconnection and transport services to government and public services organizations in the District of Columbia.

DC-Net is the "first mile" for all District government networking and is the first building block of any economic development or digital divide initiative that requires a network. It delivers Internet and network services to public schools, public libraries, community centers, hospitals and clinics, public safety agencies, administrative offices, and publicly-available Wi-Fi networks. The DC-Net program currently operates over 35,000 phone lines and 500 data circuits spanning over 500 locations. It serves 90 District entities, with a priority on education, public safety, and health care.

DC-Net manages a portfolio of approved vendors and contract vehicles to purchase telecommunications products and services in compliance with procurement guidelines and works with all District agencies to monitor and certify telecommunications inventories (landlines, cellular devices, pagers, data circuits) to best manage overall telecommunications operations. DC-Net also carries all wireless traffic associated with OCTO's 350+ wireless "hotspots" throughout the city, including the National Mall.

DC-Net's mission is to:

- Spearhead the delivery of reliable and secure data and telecommunication services within the District.
- Deliver cost effective, best-of-breed, and value-added products and services.
- Improve access to affordable broadband services for community anchor institutions, public safety entities, and District residents and businesses—particularly in underserved areas.
- Provide dependable 24/7 technical support with timely problem resolution.

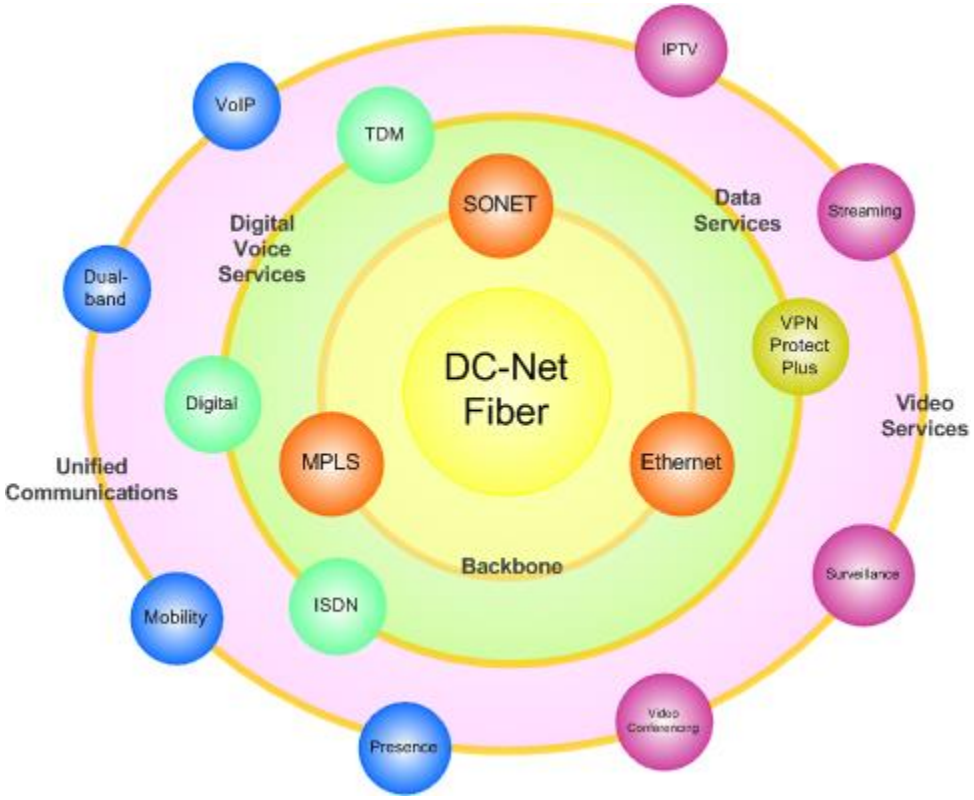
Network Features

The DC-Net network is a public safety-grade network providing reliable communication links for critical government services. Key features include:

- One-stop shopping. Unrivaled ability to offer a full range of customized telecommunications services to meet government needs in the District.
- Cost savings. A full offering of up-to-date telecommunications products and services at a savings over commercial service providers.
- High availability and reliability through redundant fiber optic connections. Full failover in the event of a fiber cut or equipment failure.
- End-to-end security on all links, fully managed by OCTO.
- Public safety-grade communications allows emergency first responders to communicate across National Capitol Region.
- Responsive service and round-the-clock technical support.
- Fully staffed, knowledgeable Support Services personnel able to walk you through the ordering process.

As shown in Figure 1, DC-Net's fiber optic network is the resilient high-speed core for all products and services DC-Net provides, from digital voice to VPN data, Voice over Internet Protocol (VoIP), and video services which use IP-based networking.

Figure 1: DC-Net Services



About this Guide

The *DC-Net Products and Services Guide* provides up-to-date descriptions of available DC-Net products and services and gives guidance on the ordering process. This document is available in PDF online at the DC-Net website: www.dcnet.dc.gov.

Data Networking

DC-Net offers Layer 3 Managed VPN data services, Layer 2 Ethernet over MPLS services, and Layer 0/1 wavelength services for District government agencies.

VPN Managed Circuits

DC-Net VPN-based data networking services for District government provide managed, secure communications at a range of access speeds from 10 Mbps to 10 Gbps and costs to fit your agency's budget. This service includes Internet access, 24 x 7 x 365 network monitoring and support, and a quality of service (QoS) service level agreement (SLA).

With the VPN (Virtual Private Network) managed service, your traffic is secured and separated from other customers' traffic on the network through the use of VPN tunneling.

VPN services enable data quality monitoring and prioritization—ensuring that real-time critical applications, such as voice and video, are queued first. It is also less expensive than traditional leased lines or remote access servers.

Features and Benefits

- Multiple access and port speeds – VPN services offer link speeds from 10 Mbps to 10 Gbps
- Dual-homed, diversely routed paths; built in disaster recovery
- Pricing includes access and transport
- Dedicated 24x7 network monitoring and customer support
- Prioritization of real-time sensitive data; guaranteed quality of service and packet delivery suitable for all traffic (including VoIP)
- Demonstrated 99.999% network uptime; network performance and availability backed by SLA
- Internet connectivity
- Secure government-only network
- Direct connectivity to District government data centers for District government services and resources

- Direct connectivity to carrier hotels, available public and private peering points for interconnection and offsite data storage/recovery
- Private connection to other District government and community anchors on network
- Metro Ethernet backbone with core ring speed of 10 Gbps, OC-48 SONET backbone with sub-50 ms failover and architectural design that allows for easy site expansion
- Prices lower than commercial service providers

Technical Overview

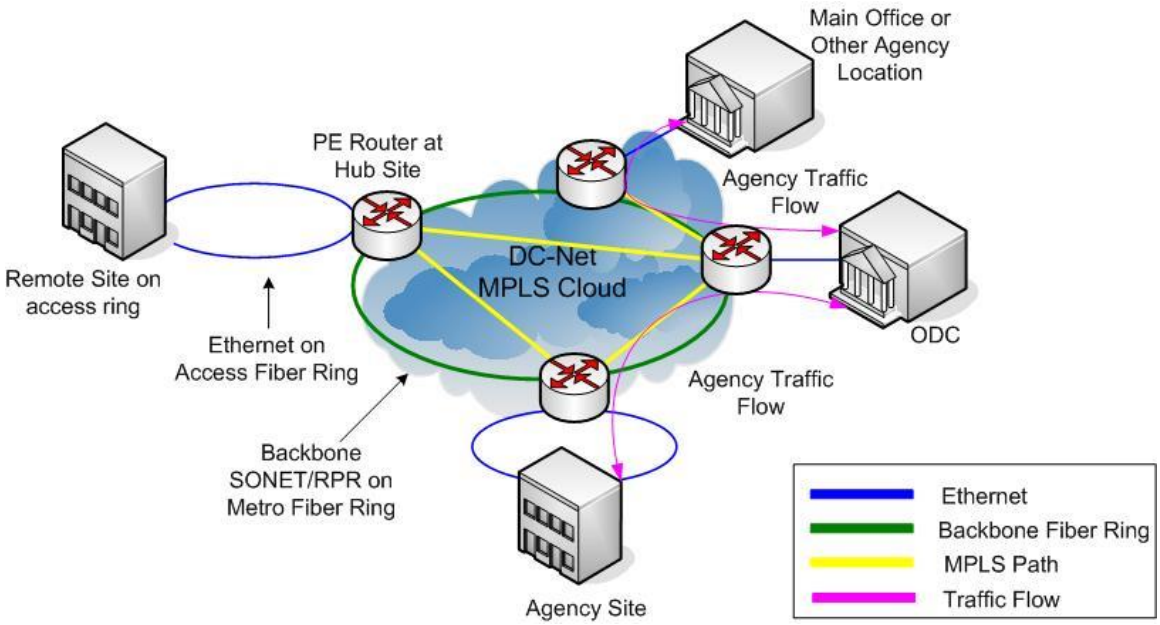
DC-Net VPN services provide secure, reliable transport of critical applications across a high-speed IP backbone infrastructure. The network uses industry leading switching and routing protocols, primarily the Multiprotocol Label Switching (MPLS) protocol. MPLS adds performance and resilience; including the ability to assign performance guarantees for each VPN tunnel.

DC-Net's backbone metro fiber rings run the Synchronous Optical Networking Technology (SONET) protocol supporting aggregate speeds of 2.5 Gbps. The protocol runs the Resilient Packet Ring (RPR) technology which enables load-sharing and path-protection between redundant fiber routes. Automatic failover in case of a fiber break or electronic failure happens within 50 ms without affecting any customer traffic.

At remote sites, Virtual Local Area Networks (VLANs) are used to identify sets of devices (computers, phones, video conferencing) as having access to a particular communications channel and a particular type of access.

Figure 2 shows how agency traffic flows over VPN connections between customer remote sites on Access Rings, the main office site, and the OCTO data center. Remote sites have fully redundant fiber from the site to the backbone carrying Ethernet traffic. At the DC-Net fiber optic Metro Ring hub sites, this communication channel is connected to a VPN tunnel to traverse the SONET backbone to the data centers and/or another location, such as a main office. Metro Rings are fully fiber optic and have full physical path redundancy.

Figure 2: VPN Service (District Government Customer)



Ethernet

DC-Net Layer 2 Ethernet over MPLS service offers point-to-point and point-to-multipoint transport over 10 Mbps to 10 Gbps circuits for District Government agencies. Layer 2 services are offered over the MPLS platform built over a protected Dense Wavelength Division Multiplexing (DWDM) ring.

Key features include:

- Dual-homed, diversely routed paths; built in disaster recovery
- Pricing includes access and transport
- Available as un-encrypted or encrypted
- Supports rate limiting
- Dedicated 24x7 network monitoring and customer support
- 99.999% availability
- Direct connectivity to District government data centers for services and resources
- Direct connectivity to core exchanges
- Available public and private peering points for interconnection and offsite data storage/recovery

- Private connection to other District government and community anchors on network

Wavelengths

DC-Net offers shared and dedicated wavelengths with point-to-point or point-to-multipoint configuration. Wavelengths are provisioned over a ring between desired locations.

The DC-Net network uses Wave Division Multiplexing (WDM) technology, which transmits multiple wavelengths over a single optical fiber; each data signal has its own wavelength.

Peering can be done using Ethernet, FC/FICON, SONET or direct wave (OTN) interfaces.

Key features include:

- Dual-homed, diversely routed paths; built in disaster recovery
- Pricing includes access and transport
- Dedicated 24x7 network monitoring and customer support
- 99.999% availability
- Direct connectivity to District government data centers for services and resources
- Direct connectivity to core exchanges in Washington, DC
- Available public and private peering points for interconnection and offsite data storage/recovery

Wavelength Transport

Available services:

- OTU - 2.5 Gbps
- OTU2 - 10 Gbps
- OTU2e - 11.1 Gbps
- OTU3 - 40 Gbps

Fractional Wave Transport

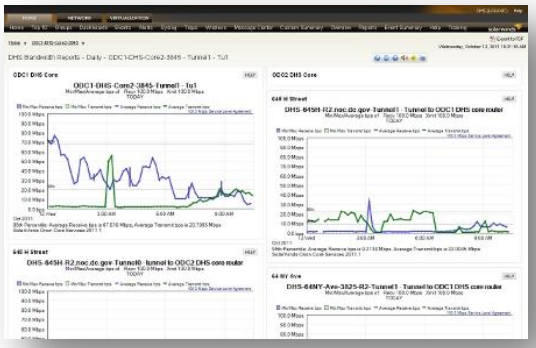
Available services:

- 1 GigE
- 10GigE
- OC-3
- OC-12
- OC-48
- OC-192

Network Monitoring

DC-Net customers receiving managed VPN services can monitor their network performance through a secure, customer-only portal with the low-cost Network Monitoring monthly subscription service. You can monitor and analyze real-time and in-depth network performance statistics for routers, switches, wireless access points, servers, and any other SNMP-enabled devices on your network.

The Network Monitoring service makes use of the following SolarWinds Orion Network Performance Monitoring features:



- Web portal access through a secured login – Leverages existing Microsoft® Active Directory™ user accounts to provide login credentials.
- Daily monitoring for each device on the network – Supports drill down on a device-by-device basis and display of detailed system information on your network device, server, virtual machine, or virtual or Fibre Channel switch.
- Alerts and notifications via email
- Error and problem identification – Enables quick and easily troubleshooting of network issues with SolarWinds LUCID™ interface.
- Circuit utilization, plus memory and CPU
- Availability and uptime

- Top 10 reports – Out-of-the-box reports deliver insight into the health of your network or data center.
- Inventory and reporting – Supports sharing of performance data with stakeholders who don’t have a login—easily schedule and export reports to a .PDF format.

Voice

Whether you are equipping a new call center, upgrading voice services at an existing site, or moving offices to a new building, DC-Net's voice services and products can meet your organization's needs and budget.

Voice Services

DC-Net provides VoIP (with Cisco or Avaya phone sets), Digital, ISDN, and Analog voice services.

Table 1: Voice Service Feature Matrix

Feature	VoIP 	Digital 	Analog
Technology	Uses Voice over Internet Protocol. Allows telephone calls to be made over the Internet or other IP-based networks.	Avaya proprietary digital protocol for use with certain model phones. Signaling is rendered in digital stream.	Legacy telephone. Signaling is rendered as a continuous wave.
Benefits	In new deployments, reduces number of jacks; future support for unified communications.	Troubleshooting done at switch; no need to dispatch technician. Eliminates need for NT1 rack. Power loss to site does not impact phone.	Low cost for fax, TTY, and other low or specific use lines.
Typical Deployment	Any new or existing site that meets the criteria for VoIP. Contact DC-Net for site survey.	Sites with Avaya infrastructure. Upgrade from ISDN. Large sites.	Fax and modem, limited range voice.
Phone Sets	Cisco Unified IP Phones Avaya VoIP Phones and Peripherals	Avaya 2420	Contact DC-Net for availability.
LED Display	Yes	Yes	No
Call Appearances	Avaya: 24 in software Cisco: 1 or 3	24 in software	No
Call Logging	Yes	Yes	No
Switch Mode	Yes. Two Ethernet ports on phone. Connect to PC and wall port. (Cisco and Avaya).	No	No
Call Forwarding	Yes	Yes	Yes

Conferencing	Yes	Yes	Yes
Speed Dialing	No	Yes	No
Unified Messaging	Yes	No	No
Voicemail	Yes	Yes	Yes
Caller ID	Yes	Yes	Yes
911	Yes	Yes	Yes

All services are available with or without voicemail on the first line and additional lines.

For technical support and information on all services, see Getting Help.

VoIP Managed Service

DC-Net provides Voice over IP (VoIP) managed services based on industry-leading Cisco Systems and Avaya telephony platforms. A key part of a unified communications solution, VoIP can enable users to access unified communications applications including unified messaging and soft client video conferencing. DC-Net uses Multiprotocol Label Switching (MPLS) to route VoIP calls across its network.

When selecting a VoIP service, DC-Net will deploy a Cisco and Avaya solution based on customer needs and infrastructure. Key considerations include:

- Is it a new site? Because VoIP deployment requires less wiring, it is often recommended on new sites.
- On existing sites, what is the voice and/or data infrastructure at that site? VoIP may be integrated with existing infrastructure.
- What are the overall customer requirements for voice applications? Cisco and Avaya phones both offer similar features, including:
  - Support for unified communications
  - Built-in Ethernet switch on the phone, providing access to the PC so that one Ethernet port can support two devices (the phone and PC) at the desk top.
  - Call logging
  - LED display (some phones have a touch screen)
  - Standard and color screens.

For more information about:

- Phone sets and features see Avaya VoIP Phones and Cisco Unified IP Phones.
- VoIP offerings and help with selecting the right VoIP solution for your agency, contact a DC-Net Customer Service Representative at 202-715-3733.

Basic Features

The following end user phone features are included in the VoIP service:

- Extension to Extension Dialing—7 or 10 Digit Extension
- Caller ID
- Call Forwarding
- Call Forwarding Always
- Call Forwarding Busy
- Call Forwarding No Answer
- Call Logs
- Call Transfer
- Call Waiting
- Calling Line ID Delivery and Blocking
- Calling Name Retrieval
- Do Not Disturb
- E911 Service
- Last Number Redial
- Shared Call Appearance
- Simultaneous Ring
- Three Way Calling/Conference
- On-Net Call (internal calls)
- Local Calls (DC Metro Area)
- Domestic Long Distance (US States only)
- Voicemail (if selected)
- Troubleshooting support

Advanced Features

The following features are supported but additional charges will apply:

- Call Tree/Call Menu

- Customized Greetings including After Hours and Holiday messages

Digital

The DC-Net Digital Line service provides all the features of Avaya digital telephone technology. Take advantage of softkeys, call appearances, and advanced features. DC-Net offers the following Avaya-based digital services:

- Digital Elite – Digital telephone service and voicemail.
- Digital Elite Plus – Digital telephone service, voicemail, and EC500.

Analog

DC-Net offers Analog voice services with and without voicemail. Typical uses for analog lines include:

- Fax machines
- TTY
- Conference room phones
- Modem lines
- Entry phones or other call boxes with localized connection
- Campus security phones
- Elevator phones

Non-DID

Non- direct inward dialing (non-DID) lines always route outside callers through an operator or attendant, in contrast to direct inward dialing (DID) lines, which let outside callers reach an internal extension without having to pass through an intermediary.

Non-DID Lines are useful when you want all callers routed through a centralized number, such as at a call center. This service can also save you money on phone lines over which you do not expect to receive incoming calls, such as fax lines, elevator phones, and security call boxes.

Voice Managed Services

In addition to the VoIP Managed Service, DC-Net provides a range of voice managed services that meet the needs of call centers and agency offices. E-fax, WebEx, audio conferencing, and unified messaging give you cost-saving and efficient ways of doing business.

Call Center Solutions

DC-Net is an experienced provider of customized call center solutions, no matter what your call volume, purpose, and complexity. Our solutions leverage state-of-the-art technology to give you a full-scale, efficient environment for managing calls. DC-Net provides a true end-to-end solution that includes customized design, implementation, and service support.

Since 2005, DC-Net has designed and implemented critical state-of-the-art systems in the District of Columbia Government's Child and Family Services Agency, Office of the Attorney General, and the Office of the Chief Technology Officer's ITServUs program. In addition, we provide full support to the District's 911, 311, and Department of Motor Vehicle call centers. Whatever your call center needs are DC-Net can help you meet them.

Key Features

DC-Net call center solutions include industry-leading Avaya and NICE Systems applications, enabling users to:

- Efficiently route calls through custom designed call flow based on your needs.
- Coordinate agent efforts and availability.
- Record and play back calls for quality monitoring purposes (using Voice Call Recording).
- Enable agents to control phone from PC, centralizing all activity on the PC (using One-X or IP Agent).
- Generate historical reports, enabling supervisors to analyze trends, establish performance benchmarks, and plan customer service (using Call Management System).
- View real-time call center reporting for any metrics (using PC Wallboard).

- Schedule the delivery of call center analytic reports (using IQ).
- Allow callers to get call backs and avoid waiting in the queue (using Callback Assist).
- View additional trend performance reports (using DC-Net Dashboard).

Flexibly designed, DC-Net solutions may also incorporate other applications, such as specialized reporting or interactive voice recognition, based on specific customer needs.

Key Benefits

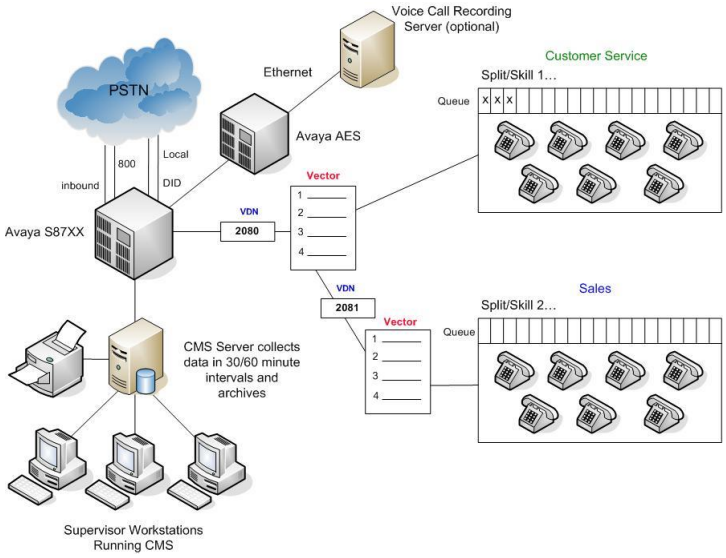
Key benefits of DC-Net call center solutions include:

- **Increase your call volume without adding staff.** Analyze call information—from average wait times to resolution rates. Use real-time data to make informed decisions on how to redistribute agents and thus reduce response times. View historical data (of up to a year or more) to see performance trends and improve processes based on these.
- **Enhance productivity while keeping close control on costs.** Costs pay for themselves in a short time through the system's reliability in successfully routing all calls, the ease of use for call agents, and improved call agent productivity. Use historical data to establish performance benchmarks and to plan more effective customer service campaigns.
- **Improve caller satisfaction.** Callers will notice the difference in efficiency, effectiveness, and quality of interactions as you use data and quality metrics derived from the system to improve staffing performance.
- **Recruit and retain top call agents.** Agents benefit by working in an environment where work is more equitably distributed and performance is based on measurable performance goals.

Applications and Architecture

At the core of the DC-Net call center solutions is Automatic Call Distribution (ACD) functionality in the Avaya phone switch that routes and distributes incoming calls to agents. Coupled with this, Call Management System (CMS) software—a standard component of the solution—lets you view agent performance in real-time and to generate time-based reports.

ACD/CMS is a scalable system that helps ensure caller satisfaction in the face of high call volume. The ACD server routes incoming calls to available call agents. CMS tracks agent activity and provides reports. CMS also captures agent availability and other information as they work. This data is then available in real-time and stored in 30-minute increments for historical reports.



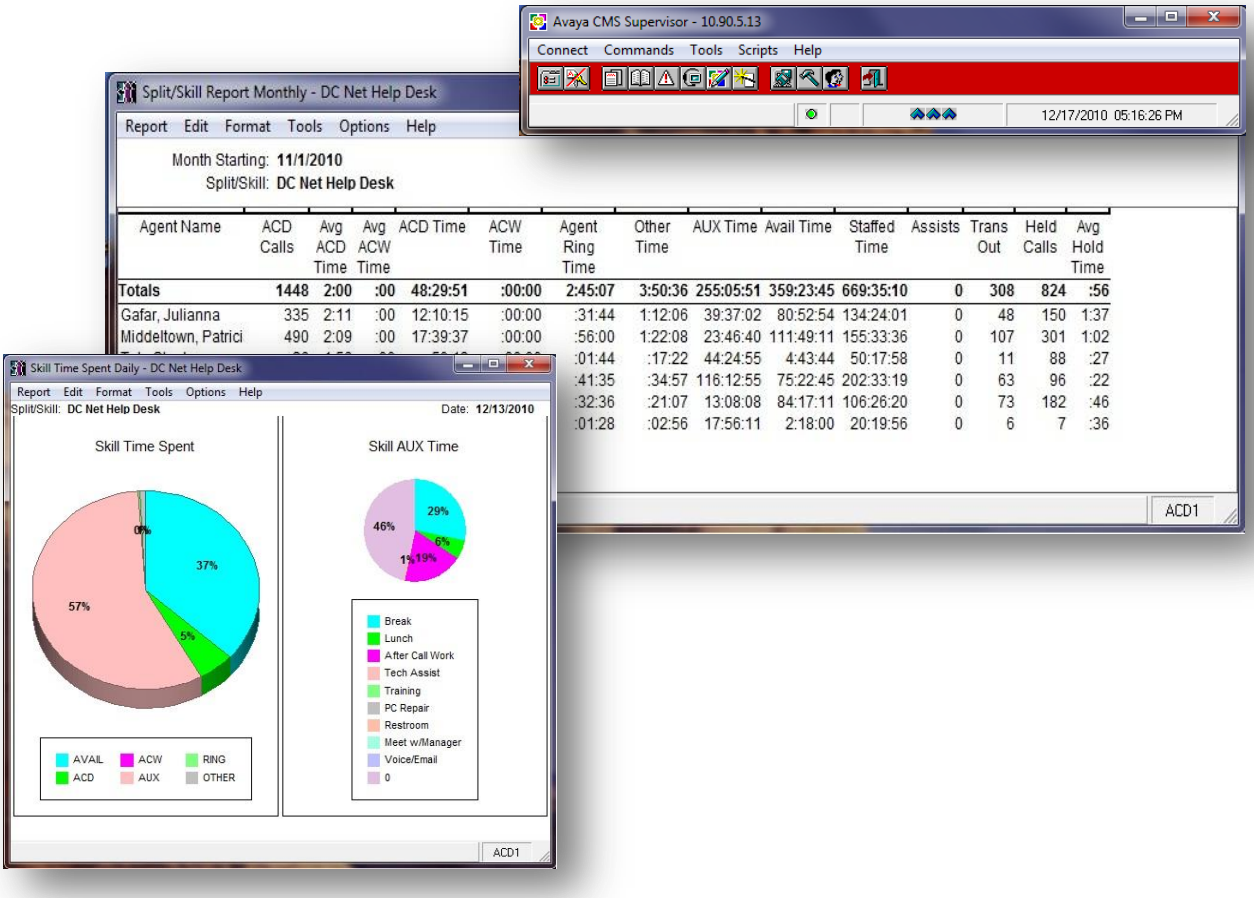
Additional applications that enhance the capabilities of your call center include:

- One-X Agent/IP Agent – centralizes all of the call agent's activity on the PC.
- Voice Call Recording – records and play back calls.
- PC Wallboard – displays call statistics on an on-screen banner.
- IQ – lets you schedule the delivery of call center analytic reports.
- Callback Assist – enables callers to receive a call back to avoid waiting in queue.
- Dashboard – provides customer-specific trend and performance reports.

Call Management System

CMS is a database, administration, and reporting application to help supervisors identify operational issues and take immediate action to solve them.

Using a familiar Windows interface, call center managers can view historical reports to help them analyze trends, establish performance benchmarks, and plan customer-service. These reports can be easily customized to suit the needs of the business. With easy access to real-time and historical data, managers can make faster, better informed decisions, for more effective contact-center operations.



One X Agent/IP Agent

Avaya One X Agent and IP Agent software enable a call center agent to control his or her desk phone from the PC, centralizing all activity on the PC and enhancing efficiency in call responses.

One-X Agent is the latest version of IP Agent software; it provides the same features as IP Agent plus Presence and Instant Messaging—enabling agents to quickly reach out to an available expert anywhere in the enterprise.

One-X Agent gives call agents the tools they need to provide a superior customer experience, whether they are working in a headquarters location, in a branch site, or home office. It provides one-touch access to functions such as answer/release, hold/unhold, conference and transfer, and click-to-dial or instant messaging from the contact list, contact log, or from Internet Explorer or Firefox.

Avaya one-X Agent provides easy access to agent automatic call distribution states, call acceptance, follow-up work, and auxiliary work modes.

Voice Call Recording

DC-Net Voice Call Recording uses the NICE Perform suite of tools for call agents and supervisors. Ideal for call centers where calls must be monitored, such as 911 and other emergency call centers, DC-Net Voice Call Recording gives supervisors the capability to record and review telephone conversations and agent desktop application screens during a call. This powerful toolset includes:

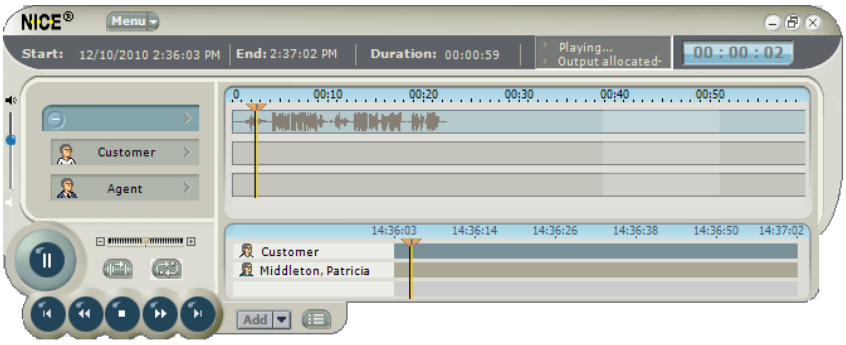
- **Monitor** – Lets supervisors listen to the voice and view screens of live agent interactions in real time. From your workstation, you can see when an agent is interacting with a customer. You can choose to listen to the voice or play its screen in real-time, and/or record and play back the interaction later on.
- **Business Analyzer** – Lets supervisors search past calls and sample calls for quality.
- **Reporter** – Lets administrators and supervisors create dashboard templates and set up reports.
- **Universe** – A customizable, template-based dashboard for users.

By capturing, storing, and managing customer telephone, chat, and email interactions in the form of voice, text, and screen activity, Voice Call Recording enables agencies to

comply with regulations and internal policies, mitigate risk of litigation, monitor quality of service, and leverage recorded calls to gain business insight.

Voice Call Recording provides reliable and resilient multi-channel capture for call centers, remote branches and back offices. Calls are searchable by telephone number, user name, and timestamp. The system supports all types of calls and can also measure how many calls an agent has received.

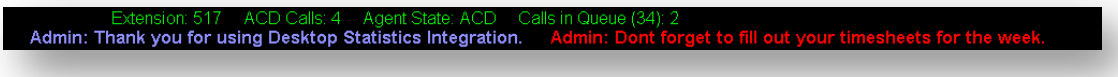
An additional feature available with Voice Call Recording provides corresponding screenshots of applications open on an agent's PC during the call. This is useful, for example, if you need to compare the contents of a conversation with an agent's record of that conversation.



PC Wallboard

Avaya PC Wallboard allows agents to view real-time call center reporting for any metrics—including average answer and talk time, time in queue, and calls abandoned. These numbers appear via a scrolling message marquee on an agent's desktop display.

PC Wallboard empowers agents by keeping them informed of contact center performance levels, bulletins, and instant notifications from administrators. PC Wallboard features multiple scrolling marquees working together to display dynamic information gathered from multiple sources.



IQ

Avaya IQ provides actionable analytics that can help reduce the total cost of ownership and increase the return on investment for your call center. These analytic reports provide value to the overall business leadership, call center directors and supervisors, and IT leaders in your organization. Key benefits include:

- Get enterprise-wide facts to base decisions on.
- Simplify complexity and standardize operations with a single view of the enterprise.
- Quick and easy data about agents' behaviors and customers' experiences.
- Get scheduled, advanced reports delivered over flexible, scalable platform.

Callback Assist

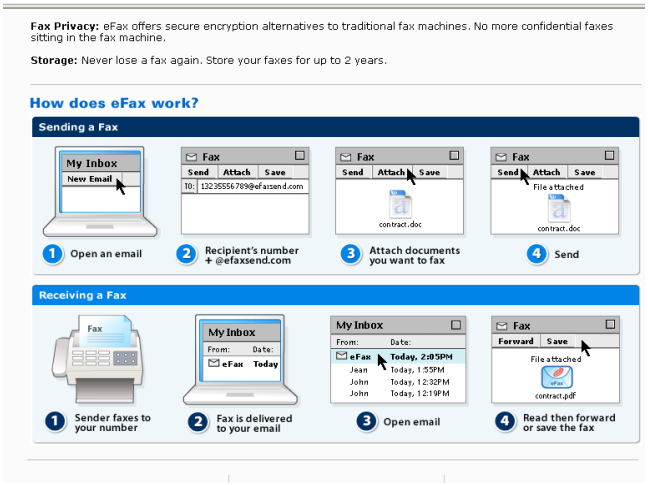
Avaya Callback Assist enables callers to have an agent call them back rather than waiting in queue. Callers can request an immediate call back or schedule a date and time. Callback Assist reduces call abandonment rates and improves the call center's ability to handle peak volumes.

The application is administered through a simple, web-based interface. It also lets you generate summary and call disposition reports.

Dashboard

The DC-Net Dashboard is an internally developed, Web-based reporting interface designed to meet customer-specific requirements. The dashboard gives decision-makers a high-level view of call center trends and performance levels.

E-Fax



E-Fax lets you reduce the time and money spent on faxing documents from legacy fax machines by offering you the convenience of sending, receiving, and managing faxes directly from your desktop. E-Fax saves you time spent waiting for the fax machine, shoving papers into the fax, and checking to see if your fax has arrived. It can save your office up to thousands of dollars per year on printer cartridges, paper, and fax machine maintenance. Use E-Fax to create a more green and efficient work environment.

Features include:

- Send a fax as easily as printing a document. The E-Fax server shows up as a printer on your list. You can add a cover page and additional attachments. You can also set up your own profile.
- Receive E-fax emails and email attachments as PDF files.
- Get notified when E-faxes have been sent and received.
- Print option if you need a print copy.
- E-Fax supports Office 2007.
- To receive E-faxes all you need is an email account.
- To send E-faxes from your desktop, just install the E-Fax client software.
- Retrieve stored E-faxes from the E-fax server even if you have deleted your E-fax emails.
- Fax privacy – secure encryption alternatives to traditional faxes. No more confidential faxes sitting on the fax machine.

E-Fax administration features:

- Support for 24 simultaneous calls
- Uses Captaris RightFax software technology
- Store faxes for up to 2 years.

The DC-Net E-Fax Multi-Function Printer (MFP) lets you connect a printer directly to the E-Fax server for scanning and faxing, bypassing the need to go through another device (such as a fax enabled PC) to connect to E-Fax server.

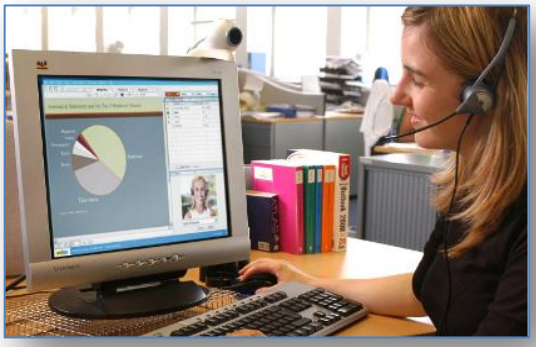
If you have multiple users who send and receive a high volume of E-Faxes, MFP offers convenience and cost savings over purchasing many individual E-Fax accounts. You can receive notification and use the printer as a destination for incoming faxes. MFP can replace or serve as a shared fax location for individual E-Fax accounts.

Web Conferencing

The DC-Net Web Conferencing solutions give you the power to conduct live online meetings, presentations, and interactive training sessions for group sizes of up to 1000 users. Take advantage of integrated voice and video, and access meetings via PC or Mac and iPhone, Blackberry, or other mobile devices. DC-Net Web Conferencing is a managed service; it features Cisco-based 24/7 technical support [1 (866) 229-3239] and online training in your monthly service.

In a web conference, each participant sits at his or her own computer and is connected to other participants via the Internet.

Key Benefits



- Online meetings – Put an end to frustrating conference calls and back-and-forth emails. Accomplish more in less time.
- Presentations – Make sales presentations, demonstrate applications, and even review contracts online.
- Live interactive training – Train customers, partners, and employees anywhere in the world. Record for on-demand training, too.
- Large online events – Get your message out to more people faster; perfect for targeted webinars, online press briefings, any type of communications.
- IT helpdesk support – Support distributed users from any location. Remotely control desktops to see and fix issues in real time.
- Customer support – Troubleshoot and resolve remote customer problems via WebEx as if you were on site.

In a web conference, each participant sits at his or her own computer and is connected to other participants via the Internet.

Features

- Meet with up to 1000 people at a time for one low monthly subscription cost.
- Share documents, presentations, and applications.
- Meet from your PC or Mac—even your iPhone, Blackberry, or any other WiFi or 3G-enabled mobile device.
- Use integrated voice conferencing— join by phone or computer (VoIP).
- Schedule meetings yourself (Outlook integration).
- Access meetings on-net via DC-Net, off-net over the Internet.
- Record meetings for those who missed the session—or new audiences.
- Deliver rich multimedia (streaming video and up to six webcams).
- Count on exceptional reliability and security.

- Get 24/7 dedicated support.

Note: Video and collaboration over WebEx are unlimited. Charges for connecting to WebEx audio vary. For WebEx Call Back Feature (1-800 number), audio is 5.5 cents per minute per user; for toll calls (650-xxx-xxxx), audio is 3 cents per minute per user; for VoIP through a computer or via headsets (and iPad/laptop audio), not through a phone, audio is free.

Audio Conferencing

DC-Net offers 20, 30, and 50 person conference bridges that meet your organization's communication needs and budget. Services include unlimited number of minutes. Monthly and on-demand services are available.

Monthly

The DC-Net 20, 30, and 50 Port Conference Bridge monthly service lets you significantly increase the number of callers with access to conference calls. This service provides unlimited minutes, so you don't have to worry about overage charges. For each conference bridge, a dedicated telephone line is available 24 x 7 x 365. DC-Net administers the bridge and provides the password. Participants call in at the prescribed conference time, enter the password, and are bridged into the conference call.

On Demand

The DC-Net 20, 30, and 50 Port Instant Meeting Conference Bridge lets you purchase an audio conference bridge for a 24-hour period. This is useful for large events where a monthly service is not needed. This service provides unlimited minutes, so you don't have to worry about overage charges.

Unified Messaging

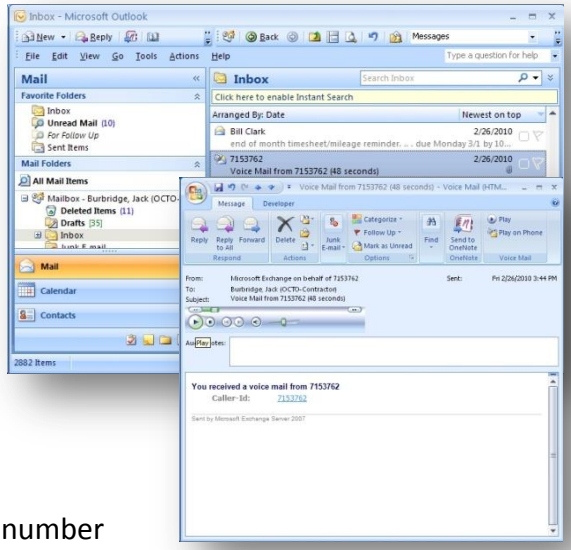
With DC-Net Unified Messaging, get all your messages all the time. Access and manage all voicemail to your phone and email *from both your phone and email*. Play voice messages from your Outlook inbox. While listening, enter notes which are stored with the message. Similarly, you can access email, calendar, and contacts from your phone. This service features 30 days of storage for messages.

Two services are available:

- **Unified Messaging Bundle** – For use with cell phone and landline phone.
- **Unified Messaging Landline** – For use with landline phone only.

With **Outlook and Outlook Web Access Voicemail Integration** you can:

- See all your voicemails in your mailbox.
- Play a voicemail from your computer.
- Play voicemail on a telephone (office, mobile, and even home phone).
- Forward voicemails to an individual or distribution list.
- Add and edit notes for any voicemail.
- See missed calls as emails.



With **Outlook Voice Access**, dial just one number to access:

- Voicemails – Play, delete, flag and forward voicemail messages.
- Email – Listen to email over the telephone, compose (dictate), forward, reply, delete, and flag for follow-up.
- Calendar – Listen to your schedule, cancel meetings, and send brief text meeting announcements such as “I am running late.”
- Contacts – Get contact information for your personal contacts and your entire DC Government Directory.
- Meeting requests – Schedule new meetings and invite internal agency and external contacts.
- Out-of-office message – Set an out-of-office message.

Paging

DC-Net Enterprise Paging Solutions provide live and ad-hoc recorded audio messages to unlimited number of phones and overhead speakers—critical for emergency and other school or system-wide notifications.

Key benefits:

- Efficiently get your message to a large number of audiences immediately without having to manually call one phone after another or employing many callers.
- From a single page, send your message to selected Cisco IP phones in the same building, other buildings within your campus, or schools within the DCPS system.
- A school principal can quickly send a message to all the phones in the school campus.
- A school chancellor can send a message to all phones in selected schools or all schools.
- Conveniently send audio messages from any telephone anywhere to selected phones and/or overhead speakers—no need to send from a dedicated paging microphone.
- Avoid construction disruptions and save on new cabling installation and audio speakers by utilizing existing Cisco IP phones as individual speakers.
- For more public and larger listening areas, send your message through overhead analog or IP speakers.
- Paging to speakers can be open or secured. Depending on your specific needs, DC-Net can extend extra security through confidential destination code, user ID, and ID plus PIN.

In live audio paging, your message is sent in real-time to selected phones and/or overhead speakers. After the optional authentication, speakers are activated and ready to play your real-time message.

In ad-hoc recorded audio paging, you can compose your message and send when you choose. At that time, speakers are activated and play your recorded message.

.

Voice Features

DC-Net offers standard features available at no cost with voice services, free Ala Carte features available on request, and Ala Carte features available at a cost.

Standard Features

Table 2 lists standard features on all voice services.

Table 2: Standard Voice Features

Feature	Description
Call Appearances – Multiple	Make or receive multiple calls simultaneously on the same phone number.
Call Forwarding	Temporarily forwards calls to any phone number. Available for On-Net calls only.
Call Transfer	Transfer a call to another number.
Call Waiting	Answer an incoming call while you are on the phone with another caller. You can turn Call Waiting off temporarily at any time.
Conference Call	Form a conference with two or more parties.
Disconnect	Drop button on telephone.
Local Long Distance	Calls made to areas outside your local calling area, but still within your Local Access Transport Area (LATA).
Message Waiting Indicator	Flashing light on a phone indicates that a message has been left from an incoming caller.
Off Premise Extension	A telephone in a different location from the main phone system, connected by a dedicated phone line, has all the capabilities of phones local to the main phone system.
Premium Message Board	Non-regulated voice messaging service lets you create an interactive voice messaging application that provides multiple pieces of information to callers based on key presses from a touch-tone phone. Callers use the touch-tone keys to navigate through a series of menu choices that let them select information they want to hear.
Send All Calls	Temporarily send all your calls to your voicemail system. Voicemail is required.
Speed Dialing	Store selected telephone numbers for quick and easy dialing.
Whisper Page	Make an announcement to a person at another extension currently on another call (permissions required). The feature forms a one-way speaking path to the destination you call. The person at the destination extension can hear you but not speak to you. Only the person at the destination extension hears the announcement. The other person on the call cannot hear your announcement. Note: If the person whom you have called is not using the telephone at the time you activate Whisper Page, the call is converted to a normal call.

Free Ala Carte Features

Table 3 lists additional Ala Carte features you can order at no cost.

Table 3: Free Ala Carte Features

Feature	Description
Call Block	Reject calls from a list of numbers you specify. The caller may get a message indicating that you are not accepting calls at the present time. Call Block does not work for numbers outside your calling area or for calls connected through an operation.
Call Park	Put a call on hold at your telephone for retrieval at any other telephone.
Call Pickup	Answer a call at your telephone for another extension in your pickup group.
Directory	Enter a user's name at the dial pad to search for that user's extension. Available on Avaya digital phones.
Exclusion	Block others from listening on bridged appearances of your line.
Enable Long Distance	Calls made outside your LATA. Fees are handled between your agency and its long distance carrier. Note: Long distance calls require a 1+ area code + number.
Fixed Call Forwarding: Busy	Routes all incoming calls to another number specified or fixed when the line is busy.
Fixed Call Forwarding: Busy – Don't Answer	Routes all incoming calls to another number when the line is busy or not answered after a pre-determined number of rings.
Intercom	Calls internal lines using two digit dialing. Setup fee applies.
Voicemail Reset	Reset voicemail. Orders are processed within 24 to 48 hours.

Ala Carte Features

Table 4 lists Ala Carte features orderable through DC-Net Support Services at a cost.

Table 4: Ala Carte Features

Feature	Description
BHC Change Charge (Agency Change)	Billing changes.
Caller ID – Analog	Display the phone number of an incoming call.
Caller ID – Line Blocking	Prevent your name and number from displaying on Caller ID display units for each outgoing call. The display unit will show "Private" or "Anonymous."
Disconnect	Disconnect a phone line.
Enable Long Distance	Calls made outside your LATA. Fees are handled between your agency and its long distance carrier. Note: Long distance calls require a 1+ area code + number.

Enhanced Call Processor (Call Tree)	Menu options to manage incoming calls during and after business hours using custom announcements and different route destinations.
Intercom	Enable Intercom services on a phone line.
Message Units	Units of measure for charging telephone calls, based on the length of the call, the distance called, and/or the time of day.
Phone Factor License	Multi-factor authentication license for VPN connectivity to network.
Restore Per Line	Disconnected line restoration.
Software number/access	Appearance of software number on telephone, for example, for a receptionist who needs main number access from his or her phone.
Telephone Number Change	Request a telephone number change.
Virtual Call Appearance / Single Number Access	See Single Number Access.
Voicemail Features	See Voicemail.

Single Number Access

Cisco Users

The Single Number Reach (SNR) feature lets you answer incoming calls to youextension on either their desktop IP phone or at a remote destination, such as a mobile phone. You can pick up active calls on the desktop phone or the remote phone without losing the connection. This enables callers to dial a single number to reach you. Calls that are not answered can be forwarded to voice mail. Remote destinations may include mobile (cellular) phones and home phone numbers.

Avaya Users

The EC500 Extension to Cellular feature for Avaya Digital and VoIP phones gives you the freedom to work anywhere, anytime, using any type of cellular or wireless phone. With EC500, calls to your office number are extended to your cell phone, letting you receive work-related calls wherever you are and whenever you need to. EC500 even provides office caller ID, so you know who is calling before you answer.

With EC500, incoming calls to your office number reach you on the road, at another location, or even walking around the workplace. This “one number reachability” means that you can respond immediately to urgent business matters. Also, when you pick up

the call on your cell phone, you can switch over to your office phone while the call is live. When you can't respond, your voicemail picks up your messages.

EC500 works with any type of wireless/cellular service. You control your availability by enabling or disabling EC500 as needed. Whether EC500 is enabled or not, your cell phone still operates as it always has. You still receive personal calls on your cell phone, because personal calls come in through your standard cellular number and service provider.

Voicemail

DC-Net provides voicemail options for all voice services.

- Avaya Digital and VoIP services – DC-Net offers Avaya Modular Messaging, a powerful unified messaging platform that offers exceptional scalability and a superior feature package of call answering, voice messaging, and speech capabilities. TTY/TDD support for disabled callers and hearing-impaired employees and callers is included.
- Cisco VoIP service – DC-Net offers Cisco Unity, a reliable, secure, scalable, and full-featured voice and unified messaging platform.

Note: Cisco and Avaya voicemail systems do not interoperate by default.

Voicemail options include:

- Voicemail 30 Minute Storage Single Password
- Voicemail Premium 60 Minute Storage
- Voicemail Premium 90 Minute Storage
- Voicemail Announcement Only

You can purchase voicemail on the first line and additional lines.

Phone Sets

DC-Net offers Avaya and Cisco phone sets.

Avaya VoIP Phones and Peripherals

DC-Net offers Avaya IP VoIP phones along with a compatible expansion module.

9600 series phones offer the following benefits:

- Productivity of Users - The productivity of end users is greatly enhanced through prompting for common telephony tasks, one-touch access to key features, and superior high fidelity audio.
- Richer Communication - The superior audio capabilities make conference calls and meetings more effective by requiring less reiteration. This has been found to reduce employee stress and fatigue.
- Investment Protection - Built on open standards with a modular platform that supports a wide range of modules and adapters to further enhance user productivity.

Avaya 9621G IP

A member of the Avaya one-X™ Deskphone Edition family, the 9621G IP Deskphone is designed for users who spend considerable amounts of time on the phone. It delivers gigabit capability and touchscreen functionality.

Features include:

- 3.7 x 2.1 inch color touchscreen display
- 4 position adjustable tilt display
- Fixed features include speaker, mute, headset, contacts, home, history, message, phone, forwarding, volume
- Wideband audio and wideband speakerphone
- Dual message waiting indicators
- 360-degree visual alert for incoming calls and voice mail

- Bluetooth and DECT headset support with optional adapter
- Built-in two port Ethernet (10/100/1000 Mbps) switch for connection to LAN and collocated PC
- Built-in headset interface

Avaya 9641G IP

A member of the Avaya one-X™ Deskphone Edition family, the 9641G IP Telephone is specifically designed for the heavy telephone user. The 9641G provides superior high fidelity audio, built-in “one touch” access to key Avaya Communication Manager mobility features such as Extension to Cellular, protocol independence (H.323 and SIP) and a stylish and professional design.

The 9641G IP Telephone includes Gigabit Ethernet capabilities.

Features include:

- Support for 10/100/1000 Mbps with a secondary GigE port for workstation or PC.
- 3.8 inch (9.65 cm) diagonal high resolution color backlit display.
- Support for up to 24 call appearances/administered feature keys with six concurrent line appearances visible at any time.
- Several LED buttons. Six LED line appearance buttons on the side of the display provide explicit status of different line appearances and administered features, while LEDs built into several buttons on the phone such as Mute, Message, and Headset provide an intuitive and simple experience for the everyday end user.
- Helpful and intuitive user interface.
- Completing call transfers and setting up ad hoc conference calls is simple and can be executed with confidence. Some of these features, such as Extension to Cellular and Extend Current Call, are critical to the essential user.
- Support for 24-button expansion module, which provides additional call appearances, bridged appearances, and administered feature keys including speed dials.

- Superior Audio Quality—High-fidelity acoustics, including wideband audio support in the speaker, handset, and headset, deliver industry-leading audio that minimizes ambient noise.
- Four-way navigation button cluster provides a familiar, cell phone-like interface for navigation and feature selections.

Avaya 9650 IP

A member of the Avaya one-X™ Deskphone Edition family, the 9650 IP Telephone is specifically designed for building receptionists, executive assistants, contact center agents, and knowledge workers who manage calls for themselves and for groups of people and who need quick access to features and call appearances. The 9650 features built-in button module functionality with one-touch access to bridged appearances, speed dials and feature keys. When used with Avaya Communication Manager 4.0, the 9650 supports up to three SBM 24-button expansion modules.

Features include:

- g.722 codec open standard for wideband audio, which provides uncompromised sound quality.
- Advanced communications capabilities, high definition audio, an integrated WML application interface, and comprehensive one-touch access.
- Support for higher quality wideband audio in both the handset as well as the speakerphone, which provides crystal clear audio with the elimination of background noise.
- Backlit display and intuitive interface simplifies access to Avaya Communication Manager features.
- Some features simultaneously manage multiple calls while selectively muting and dropping conference call participants.
- Support for built-in button module functionality (eight physical buttons with shift capability for a total of 16 feature keys) to provide simple one-touch access to bridged appearances, speed dials and feature keys.
- Dual position flip stand.

- Through integrated web browser and application interface, it supports productivity enhancing phone applications such as LDAP corporate directories and integration with Microsoft Outlook calendars.

Avaya 9670G IP

A member of the Avaya one-X™ Deskphone Edition family, the 9670G IP Telephone is specifically designed for the heavy telephone user. A large touch screen on this phone provides access to contacts and applications. An onscreen keyboard makes using features easy. All of these features help make employees more productive.

The 9670G provides superior high fidelity audio, built-in “one touch” access to key Avaya Communication Manager mobility features such as Extension to Cellular, protocol independence (H.323) and a stylish and professional design. The 9670G includes Gigabit Ethernet capabilities.

Features include:

- g.722 codec open standard for wideband audio, which provides uncompromised sound quality.
- Advanced communications capabilities, high definition audio, an integrated WML application interface, and comprehensive one-touch access.
- Support for higher quality wideband audio in both the handset as well as the speakerphone, which provides crystal clear audio with the elimination of background noise.
- Backlit display and intuitive interface simplifies access to Avaya Communication Manager features.
- Some features simultaneously manage multiple calls while selectively muting and dropping conference call participants.
- Support for built-in button module functionality (eight physical buttons with shift capability for a total of 16 feature keys) to provide simple one-touch access to bridged appearances, speed dials and feature keys.
- Dual position flip stand.

- Through integrated web browser and application interface, it supports productivity enhancing phone applications such as LDAP corporate directories and integration with Microsoft Outlook calendars.

Avaya 1692 IP

The Avaya 1692 IP Speakerphone provides the convenience and productivity benefits inherent in a powerful, hands-free conference phone. It delivers the extensive set of Avaya Aura™ features directly to small, midsize and large conference rooms. Key features and benefits include:

- Improved productivity during conference calls with hands-free full duplex operation delivering simultaneous two-way conversations.
- Simplified wiring connects to your IP network with a 10/100 Base T Ethernet LAN connection. Simplified setup with integrated Power over Ethernet (PoE) with an AC power kit is available for non-PoE environments.

Avaya 9600 Series IP Phone Expansion Module

The Avaya IP Phone Expansion Module provides 24 additional lines for incoming calls, outgoing calls, and calling features.

Key features include:

- Compatible with Avaya 9600 series IP telephones
- Can add up to 3 SBM24 modules per phone

Avaya Digital Phone – 2420

The Avaya 2420 Digital Telephone features a large display screen with a 7-line x 29-character Liquid Crystal Display (LCD). It is fully adjustable for optimum viewing from many angles. The large-scale display offers an effective user interface that can improve workforce productivity and serviceability.

Key features include:

- No Paper Button Labels – All buttons on the display are labeled and customizable.
- Easy Button Access – 24 system call appearance/feature buttons.
- Call Log – Provides automated call tracking with a 100-entry call log.
- Speed Dial Directory – In addition to the system directory, the phone provides access to a speed-dial directory with the capacity to store up to 104 speed-dial numbers for quick access to the numbers most used.

Avaya IP Phone Comparison Matrix

Feature	9670G IP	9650 IP	9641G IP	9621G IP	1692
					
Technology	IP	IP	IP	IP	IP
User	Heavy	Navigator (reception, call agents)	Heavy	Heavy	Small to midsize conference
Call Appearances	24	24	24	24	10
Call Log	✓	✓	✓	✓	
Display (inches)	5.1 x 3.8 color	3.1 x 2.3 color	4.1 x 2.3 color	3.7 x 2.1 color	
Feature LEDs	10	11	10		
Speaker Phone	✓	✓	✓	✓	
Softkey Buttons	0 – 5, touchscreen	12	0 – 5, touchscreen	0 – 5	
High-Fidelity Audio	✓	✓	✓	✓	✓
Integrated Speed Dial/ Contacts	250	250	250	250	
Expansion model support	✓	✓	✓	✓	
Ethernet Switch	✓	✓	✓	✓	
Communications Protocol	H.323	H.323	H.323, SIP	H.323, SIP	H.323
USB Port	✓	✓	✓	✓	

Cisco Unified IP Phones

DC-Net offers a wide range of Cisco unified IP phones, including wireless and videophones for our Cisco VoIP solution. When you purchase a Cisco phone from DC-Net, this includes licensing that lets you:

- Access multiple applications and phone set features without paying any additional license fee.
- Upgrade phone sets without purchasing a new license.

Cisco 9971 – Videophone

Advance the pace of decision-making and enhance user experience with high-performance business video and wireless communications from your phone. The Cisco Unified IP Phone 9971 delivers high-quality, advanced interactive multimedia communications in a design that is both user- and eco-friendly. It offers the following features:

- Interactive video elevates and personalizes communications (includes Cisco Unified Video Camera)
- Large backlit, vibrant high-resolution 640 x 480 pixel fully-adjustable color display with touchscreen makes viewing easy
- Built-in 802.11a/b/g Wireless-fidelity (Wi-Fi) radio increases portability and return on investment
- Twelve tri-color illuminated LED line/feature keys provide at-a-glance status for primary and shared lines
- Dual standard USB 2.0 ports support wired headsets for greater choice and convenience
- Bluetooth 2.0 headset profiles adds freedom at the desk
- High-definition voice (HD voice) provides greater clarity in communications
- Up to three Cisco Unified IP Color Key Expansion Modules for added scalability
- XML and MIDlet multimedia applications transform business processes and enhance user experience

- Gigabit Ethernet switch ports deliver high-speed network connection and PC collocation for reduced infrastructure cost

The 9971 is also eco-friendly. It is made from reground and recyclable plastics and has a deep-sleep power option to reduce power consumption up to 90 percent in off-hours as compared to its active state.

Cisco 8945 – Videophone

The Cisco Unified IP Phone 8945 is a new and innovative IP endpoint that delivers affordable, business-grade voice and video communication services to customers worldwide.

The Cisco Unified IP Phone 8945 integrates video communications into the Cisco Unified IP Phones 8900 Series with a built-in, high-quality video (VGA or 640 x 480 pixel) camera up to 30 frames per second, for both encoding and decoding. The Cisco Unified IP Phone 8945 renders video on its high-resolution, 5-inch diagonal, fully backlit, VGA-quality display.

The phone supports four lines and four context-sensitive soft keys along with a high-definition voice, full-duplex speakerphone for a more productive and more flexible endpoint experience. Fixed keys for hold, transfer, redial, and conference; a tri-color LED line; and feature keys also make the endpoint simpler and easier to use.

Cisco 8961 – Desktop IP Phone

Enhance collaboration within your business with high-performance multimedia endpoint communications. The Cisco Unified IP Phone 8961 delivers comprehensive multimedia communications and advanced feature capabilities in an elegant ergonomic design that is both user- and eco-friendly.

Features include:

- Ten tri-color illuminated LED feature/session keys support at-a-glance status for both primary and shared lines
- Large 5-inch, backlit, vibrant high-resolution, fully-adjustable color display enhances user experience with easier viewing
- One USB 2.0 port supports USB wired headsets for added choice and convenience
- High-definition voice (HD voice) delivers greater clarity in communications
- Gigabit Ethernet switch ports help enable collocation of a multimedia PC for reduced infrastructure costs
- Supports one Cisco Unified IP Color Key Expansion Module, for added scalability of line/feature keys
- Support for Cisco and third-party XML and MIDlet applications transform business processes and enrich user experience
- Display capable of right-to-left language presentation enhances user experience
- Rounded ergonomic keys enhance tactile feel

Cisco 7925G – Wi-Fi Enabled Mobile Phone

Enhance the user experience and personal freedom with support for Bluetooth. Increase business continuity by taking advantage of a new ruggedized industrial design. The Cisco Unified Wireless IP Phone 7925G for mobile professionals extends the functionality of the existing Cisco Unified Wireless IP Phone 7921G with the following new features:

- Support for Bluetooth v2.0 headset profiles gives you more freedom.
- Hermetically sealed phone/display is IP54 rated, protects against dust, liquids, and moist wipes, and is ideal for deployment in more demanding environments.
- Ruggedized industrial design is compliant with military 810F standard and includes a rubber casing to shield the phone from damage caused by drops and shocks.
- A more compact form factor gives you an IP phone that is easier to hold.

Other features include:

- IEEE 802.11a, b, and g standards that allow customers to use the phone in the 2.4 GHz or 5 GHz bands.
- A 2-inch color display (176 X 220 TFT) that is easier to read and enhances XML applications.
- Built-in speakerphone capabilities.
- Dedicated mute and volume keys, and separate Application button that can support Push-to-Talk via Extensible Markup Language (XML).
- Longer battery life (200 hours standby time or 15.5 hours talk time).
- High durability for all business environments.
- Exceptional voice quality with support for wideband audio.
- Diversity antenna for better RF coverage.
- Support for wide range of enterprise applications through XML.
- Wireless security features including LEAP, PEAP, EAP-FAST, EAP-TLS, WPA, WPA2, CCKM, WEP, TKIP/MIC, and AES.
- Voice security features including Certificates, Secure Real-Time Protocol (SRTP), and Transport Layer Security (TLS).
- Support for Wavelink Avalanche.
- Quality of service features including WMM, TSPEC, EDCA, and QBSS.

The 7925G phone set includes desk charge station and extended battery.

Cisco 8831 – Conference Bridge

The Cisco Unified IP Conference Phone 8831 delivers highly secure, comprehensive, mission-critical unified communications with wideband, full-duplex audio performance and flexible accessory options. It is ideal for conference rooms and executive offices within small to large agencies.

Get audio communications support for executive offices and conference rooms up to 1500 square feet (139 square meters) with 360-degree room coverage.

A wired control panel with a dial pad extends from the base station, adding convenience and flexibility in multi-chairperson meetings.

A full-duplex, two-way wideband (G.722) acoustic audio speaker delivers superior audio performance for a "good as being there" audio experience.

Features include:

- Private, highly secure, business audio communications through the 128K Advanced Encryption Standard (AES)
- 10/100 Ethernet port to reduce cabling infrastructure and costs with support for a collocated PC
- Class 3 Power over Ethernet (PoE) support for infrastructure reduction through elimination of local power cubes
- Configuration, deployment, and management, just like other Cisco IP phones for faster, easier administration

Headsets

DC-Net offers wireless headset and electronic hook switch packages for Cisco and Avaya users.

These combine the Plantronics Savi W0 100 convertible wireless headset and the Plantronics Savi EHS Avaya cord in one package.

The headset system lets users connect to multiple communication applications and devices—desk phones, PC soft phones, and PC audio—with a single headset. With a touch of a button, professionals can connect a soft phone call on a PC with a desk phone call and then attend a Webinar.

Features include a noise-canceling microphone, wideband PC audio, and integrated DECT 6.0 technologies. The headset offers lifelike fidelity with every call and application and lets users roam up to 350 feet from their desk without compromising on clarity.

The electronic hook switch (EHS) allows the user to control calls from the headset. It plugs into the phone and the headset base station plugs into it.

This product supports DC-Net Cisco IP 7900 series phones and Avaya 2420 and 9600 series phones.

Cisco Unified IP Phone Feature Comparison

	7925G	8831	8945	8961	9971
					
Description	Wireless	Conference Station	Videophone	General	Wireless Videophone
Integral Switch	N/A	10/100	10/100/1000	10/100/1000	10/100/1000
User License	CUWL Standard	Enhanced	CUWL Standard	CUWL Standard	CUWL Standard
Display	Digital, 16-bit graphical backlit TFT Color, 2"	396 x 162 Mono (3.5 in)	Digital, 16-bit graphical backlit TFT Color, 5"	Backlit color 640 x 480	Backlit color 640 x 480
Number of DNs supported	6	1	4	2	6
Programmable (line) keys	N/A	0	4	2-lighted	6-lighted
Programmable (soft) keys	2	4	4	4	3
Speakerphone	✓	✓	✓	✓	✓
Headset Port	✓		✓	✓(wideband support)	✓
Wideband	✓		✓	✓	✓

Audio					
iLBC support	✓	✓		✓	✓
'5-way' navigation cluster	✓			✓	✓
Headset mobility				✓	✓
XML App. Support	✓	✓	✓	✓	✓
Extension Mobility	✓		✓	✓	✓
Video Advantage Camera support			✓		✓
Power budget	N/A	13.0W	6.49W	5W	5W
Power - other	Standard or Extended battery	May alternatively use power cube	Power cube 3, power injector	Power over Ethernet or Power Cube 3	Power over Ethernet or Power Cube 3
Signaling Protocols	SCCP	SIP	SCCP/SIP	SCCP	SCCP

Video Teleconferencing

DC-Net's Video Teleconferencing (VTC) service provides District government agencies with the enterprise-wide delivery of high definition (H.323) video and audio over an IP infrastructure. The system uses a standards-based state-of-the-art Cisco/Tandberg infrastructure, enabling interoperability across a range of endpoint types from inside and outside the network.

VTC helps agencies communicate more cost-effectively and efficiently with other agencies, the public, vendors, and internally. Key benefits include:

- Efficiency in business operations—cost savings and cost avoidance for all users, whether in office or mobile and greater ability to collaborate
- Greater responsiveness to constituents—public interaction with government and via government (E-concierge and public kiosks)
- Training and education—employee and public training, distance learning and video presence at schools, job training sites, and other learning centers
- Emergency readiness and response—Communication within the District and with external public safety networks

VTC service features include:

- Unlimited, point-to-point video conferencing included in basic price (basic service is required for multi-port bridging options)
- High definition (HD) and Standard definition (SD) monthly subscription multi-port bridging – enabling large meetings and training sessions
- HD or SD pay-per-use multi-port bridging service – enabling one-time meetings and events
- Scheduling support for all bridging services

- Video conference recording and sharing – a secure environment for storing and sharing recording
- Full 24/7 technical support for Cisco/Tandberg endpoint types installed by DC-Net or approved integration vendors

Unlimited Point-to-Point Video

When you purchase VTC for an endpoint you get the ability to make and receive an unlimited number of point-to-point video conference sessions at any time. No reservations are required, and no additional costs apply beyond the set monthly charges for that endpoint.

Monthly charges are based on the amount of bandwidth required by the endpoint type.

Multi-Port Bridging Options

DC-Net offers monthly and on-demand multi-port bridging options that allow you to host video conferences of up to 20 participants.

To set up a bridged conference, simply call DC-Net Support Services to schedule it. A DC-Net support agent will log the date and time.

Monthly Bridging

Multi-port Monthly Conference Bridging services—an add on to the Multi-Purpose Conference Room VTC service—allow you to host video conferences of up to 4, 10, and 20 participants. This service is ideal for agencies that:

- Host ongoing, scheduled meetings with other District agencies, federal agencies, or private businesses in and out of the District
- Provide ongoing staff and/or public training sessions

Options include:

- High Definition multi-port bridging is available for up to 4 and 10 participants
- Standard Definition multi-port bridging is available for up to 4, 10, and 20 participants
- Premium Multi-Port Bridging service ensures availability of your conference time

On-Demand Bridging

Multi-Port On-Demand Conference Bridging services—an add on to the Multi-Purpose Conference Room VTC service—allow you to host a video conference of up to 4, 10, and 20 participants. This service is ideal for single use events such as conferences, forums, and special meetings or training sessions. The one-time setup fee, orderable in advance from RTS, gives you an 8-hour available block of time.

Options include:

- High Definition multi-port bridging is available for up to 4 participants
- Standard Definition multi-port bridging is available for up to 4, 10, and 20 participants

Cisco/Tandberg HD Endpoint Options

DC-Net supports the following Cisco/Tandberg endpoint types installed by DC-Net or approved integration vendors:

- Immersive solutions—1300, 3000, 3200, and T series high-end solutions
- Multi-purpose conference room—Profile and MX series codecs
- Desktop Telepresence—EX series for executive users
- Jabber Video Client for PC laptop or Mac—HD experience for the mobile user
- Video phones—Cisco 9971 and 8945 IP videophones

Customers with other endpoint types can purchase VTC service; however, they will need to maintain support for their endpoints.

Immersive Solutions

Immersive video teleconferencing solutions use state-of-the-art technology to deliver telepresence quality video at 2+ Mbps quality per screen.

Options include:

- 1300 Series – Telepresence quality in multi-purpose room
- 3200, 3000 Series – medium to large groups
- T Series – ultra high-end, fully designed bluescreen room

For more all-immersive solution deployments, you will engage one of our preferred vendors for endpoint room design and installation.

Multi-Purpose Conference Room

Multi-purpose conference room endpoints give you the opportunity to host larger scale, collaborative meetings using HD or SD video—depending on the codec selected.

Options include:

- Profile Series –1080p30 and 720p60 resolution; 42, 52, and 65 inch screen
- MX200 and MX300 – 1080p30 and 720p60 resolution; 42, 55 inch screen
- C20 – can use own monitor

This codec driven endpoint supports connectivity to any other standards-driven endpoint.

For basic multi-purpose conference room endpoints, DC-Net provides design and installation. For more complex deployments, you will engage one of our preferred vendors for endpoint design and installation.

Add a Monthly or On-Demand Multi-Port Bridging service for multi-point conferencing.

Desktop Telepresence

The Cisco EX60 and EX90 endpoints bring personal telepresence to the desktop, letting you and your colleagues collaborate face-to-face on a full high-definition 24-inch or 21.5-inch screen. The endpoint can be used as both a PC monitor and a telepresence system, giving you more flexibility at your desk.

Key features:

- Simple touch-screen control that makes calling and sharing easy and intuitive
- 1080p30 and 720p60 video resolution for an optimal telepresence experience at the desk
- H.323 and Session Initiation Protocol (SIP) with bandwidth up to 6 Mbps point-to-point
- Natural, transparent collaboration with one-touch sharing of high-definition (HD) content, and a built-in document camera feature
- An included wideband handset, with an option to add a headset input for privacy

Jabber Video Client

The standalone mobile Jabber Video Client (formerly Movi) extends the reach of high definition, telepresence quality video to the remote user. Jabber Video works with a compatible PC or Mac and a webcam or Cisco TelePresence PrecisionHD camera. Jabber Video can connect to telepresence systems, resulting in a wider community of colleagues, partners, and business customers.

Key features include:

- Support for up to 1080p HD quality at 30 fps
- Supported on PC and Mac platforms
- Ability to make outbound video/audio calls and to receive inbound Jabber Video or other video conference endpoint calls

Video Phones

For information about Cisco videophones see, Cisco Unified IP Phones.

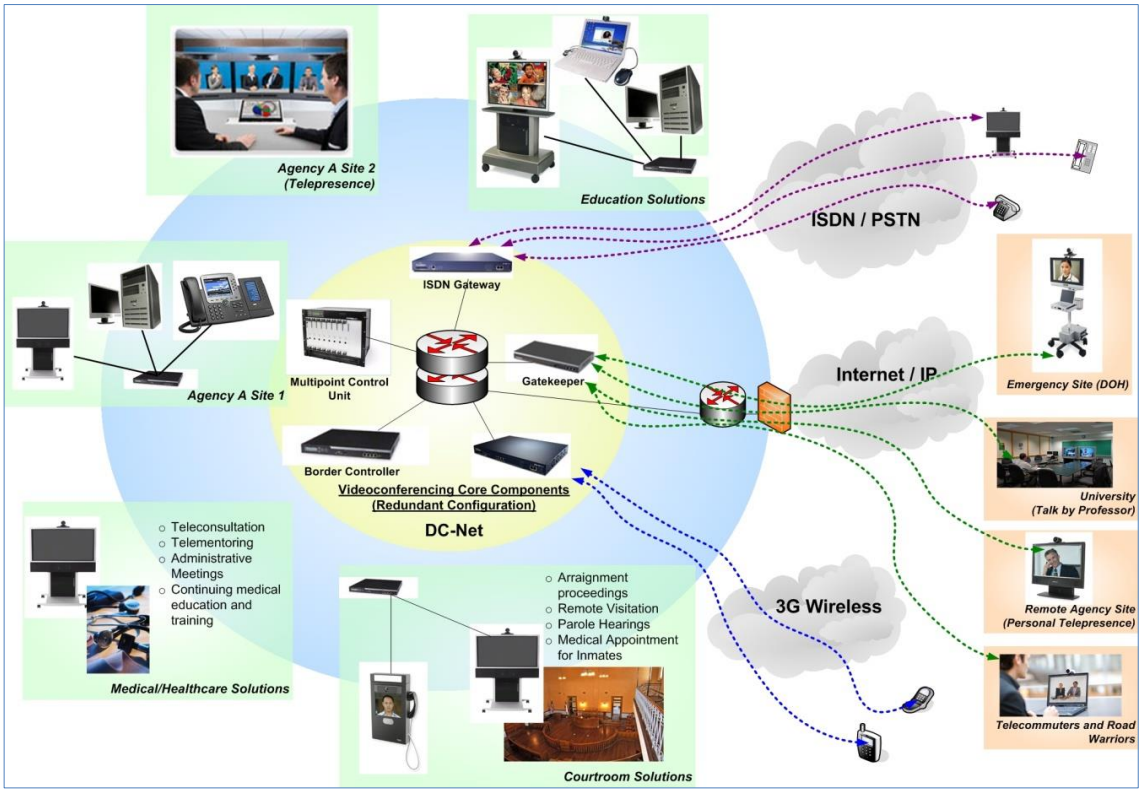
Architecture Highlights

DC-Net Video Teleconferencing services are delivered over a secure, stable, enterprise-wide architecture that is built to last. Features include:

- Standards-based – allows any-to-any interoperability from different endpoints, including ISDN (H.320) support for off-network conferencing
- Best of breed Cisco/Tandberg equipment in core
  - Leverages existing DC-Net backbone infrastructure, voice IP PBXs, and IP MPLS L3 VPN architecture
  - Scalable, easy to expand core components
  - Secured system, able to traverse firewalls
- Integrated scheduling
- Supports collaboration, H.239, and is SIP compliant
- Highly reliable network
- Supports HD video and audio
- Customizable product offerings meet the specific needs of individual agencies
- Consistent monitoring and maintenance of endpoints, infrastructure, and network

Figure 3 shows a range of video conferencing applications over the DC-Net backbone network and managed by the core components. Users outside the network can connect over the Internet and through ISDN/PSTN endpoints. 3G/4G wireless connectivity is planned for future deployment.

Figure 3: DC-Net Video Conferencing Architecture



Wireless

DC-Net offers both the extension of customer local area network (LAN) through indoor wireless services and outdoor wireless services.

Wireless LAN

DC-Net helps you meet your agency's growing needs for wireless services by offering the wireless extension of data circuits through both secure and public Wi-Fi access. We also customize wireless access point (AP) installation and management based on agency needs and site size and type. Both permanent and on-demand temporary indoor and outdoor AP placements are supported.

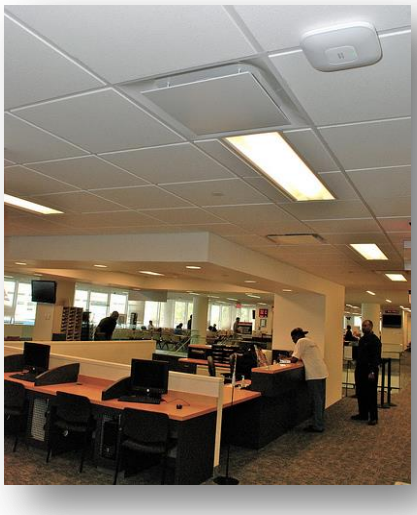
By leveraging state-of-the-art Cisco technology and supporting standards-based unlicensed frequencies (802.11 a/b/g/n), DC-Net can install and manage WAPs at each newly deployed site, enabling ubiquitous, secure wireless access for government workers. In addition, DC-Net wireless "hotspots" at these sites enable public access to District government services and the Internet over DC-WiFi.

Benefits

Meeting the growing demand for mobility and increased collaboration, DC-Net helps workers operate more effectively throughout the office environment, whether this is using a laptop in a wireless conference room or working remotely as a "visitor" at another agency.

This service is particularly useful at locations with a predominant number of mobile workers or other users, such as public safety sites, health care facilities, warehouses, job training centers, and educational institutions and campuses.

DC-Net wireless infrastructure is an extension of the enterprise network, thus enabling centralized management and a range of wireless applications



Indoor wireless access point deployment

and benefits:

- Wireless LAN connectivity for laptop and other wireless device users
- Wireless VoIP for in-building wireless phones (Cisco 7925G and others) over the WLAN
- Secure separation of private/authenticated (secured SSID) and public/guest WiFi access
- Location tracking for personnel and assets
- Point of sale applications
- Complement to bar code scanners in warehouse
- OfficeAnywhere – Optimal for disaster recovery scenarios, pre-provisioned WAP extends internal network access over an existing Internet connection from anywhere.

Services

DC-Net offers the following wireless LAN solution options:

- **Deluxe** – Ideal for large offices with bandwidth intensive multimedia voice and video applications and for hardened facilities. The Deluxe solution provides the most extensive wireless coverage available.
- **Standard Plus** – Ideal for large offices with bandwidth intensive multimedia voice and video applications and for environments with users with newer laptops and Wi-Fi enabled devices.
- **On Demand** – Contact DC-Net for indoor Wi-Fi deployments for special events.

DC-Net provides a full wireless solution that includes RF network design, AP configuration, installation, centralized management, and 24/7 support and maintenance. APs may be purchased with or without licensing and network design costs, depending on the scale of your agency wireless network size. DC-Net will help come up with the best-cost solution for your agency.

Wireless access points (APs) provide a standards-based extension of the existing data circuit, supporting both authenticated (Secure) and public (DCWiFi) SSIDs. These connections are completely separate. Workers use the secure connection to access the network; authentication is tied to existing user credentials. Visitors use DCWiFi to access the Internet.

DC-Net uses Cisco Aironet 3600 series internal APs which provide a range of approximately one AP per 3000 square feet in most structures. These devices support 802.11 a/b/g/n Wi-Fi standards. Bandwidth is negotiated at whatever the user device supports, with theoretical speeds up to 11 Mbps for 802.11 b, 54 Mbps for 802.11 a/g, 350 Mbps for 802.11 n, and from 450 Mbps (single band) to 900 Mbps (dual band) with next generation APs.

Installation and Management

When you order wireless access point service from DC-Net all aspects of implementation and management are covered. DC-Net's experienced Radio Frequency Engineering team designs, configures, installs, and manages the network wireless infrastructure. Depending on a site's size and customization, DC-Net either manages access points remotely from on-site equipment or through its enterprise core infrastructure.

The DC-Net management infrastructure uses Cisco unified wireless controllers. These controllers support intrusion detection and rogue AP detection as well as custom usage reporting.

Outdoor Wi-Fi

DC-Net offers the following services for outdoor wireless connectivity:

- **LAN Extension** – Similar to our indoor wireless service, this service extends the customer LAN (data, voice, video SSIDs) from indoor to outdoor campus. Cost includes monthly maintenance and management of wireless access points. Site surveys determine the number of access points to adequately cover your campus. Data service is required.
- **Point-to-Point Wireless Transport** – For locations with data transport needs of up to 10 Mbps and/or where fiber construction is not feasible, this service provides reliable transport for data, voice, video with QoS abilities.
- **Internet Access** – Provides access to the Internet at hotspots across the city.

Professional Services

DC-Net offers voice service related Professional Services by our engineering and technical staff. Professional Services includes:

1. **Physical cable** – Any cable work that requires extensive time and resources beyond what the product code for cable installation covers. Work includes the installation of single 4 pair Cat. 5E or Cat. 6 cable from customer demarcation point (room or device) and related work. Wiring conforms to BICSI standards.
2. **Programming** – Includes moves, adds, and changes completed in software on Avaya and Cisco PBXs and E-Fax system, the implementation of completed design work (for example, implementing an ACD/CMS system or call tree), and training.
3. **Design support** – Includes the software administration of PBXs; upgrading and updating circuit packs; voicemail maintenance; designing ACD/CMS and other systems.
4. **Individual case basis** – Includes building cutovers and upgrades from sites outside of DC-Net to on-net sites; upgrade from ISDN to Digital services.

In addition, DC-Net Professional Services conducts site surveys when you are considering new voice and data services or services beyond the standard moves, adds, and changes handled by DC-Net's Customer Service Representatives. A site survey precedes all Professional Services orders. The site survey allows DC-Net to assess the site environment, including existing voice hardware and electronic infrastructure, wiring, and physical and logical design to present you with options that best suit your agency's goals and budget for the site.

A site survey is required for any considered change that involves:

- 10 or more telephones at one time.
- Moves that require new wiring, including moves to a different floor within the same building.
- Moves to a new building.
- A voice service change (for example from ISDN to Digital) or equipment upgrade.

For more information about Professional Services, contact DC-Net at 202-715-3733.

Ordering Products and Services

The process you follow for ordering DC-Net products and services depends on your government agency.

For pricing, additional product information, or billing questions contact DC-Net (8:30 AM to 5:30 PM, Monday through Friday) at 202-715-3733.

Non-District Government Customers

Non-central pay District government entities can order services by contacting DC-Net Support Services at 202-715-3733.

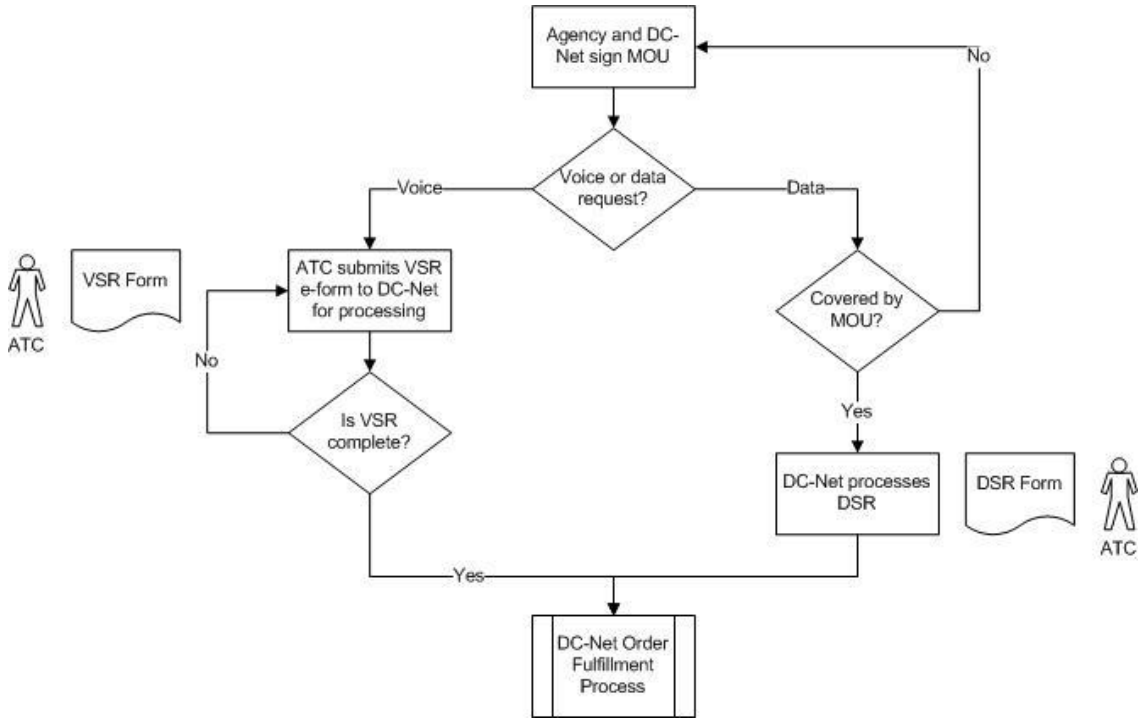
Non-Central Agency Pay Process

Requests for products and services through non-central pay District government agencies are based on a Memoranda of Understanding (MOU) signed by the agency and DC-Net for the fiscal year.

- For voice service requests, the ATC submits an electronic VSR form directly to DC-Net.
- Data service requests outside of the scope of the MOU would necessitate a new or revised MOU.

For more information, see the DC-Net intranet site at: www.dcnet.in.dc.gov.

Figure 4: Non-central Pay Process



Central Pay District Government Customers

For central pay District Government agencies, the Agency Telecommunications Coordinator (ATC) is the point of contact for users in agencies who want to request DC-Net products and services. **All District Government agency requests for DC-Net service must go through the ATC.**

ATCs at Central Pay agencies use the Request for Telecommunications Service (RTS) system to request a telecommunications service. Complete this request for all additions, changes, or modifications to any telecommunications services or products. **Your request must have the appropriate signatures.**

Requests for products and services through central pay agencies (most agencies in the District Government) are invoiced through the RTS system.

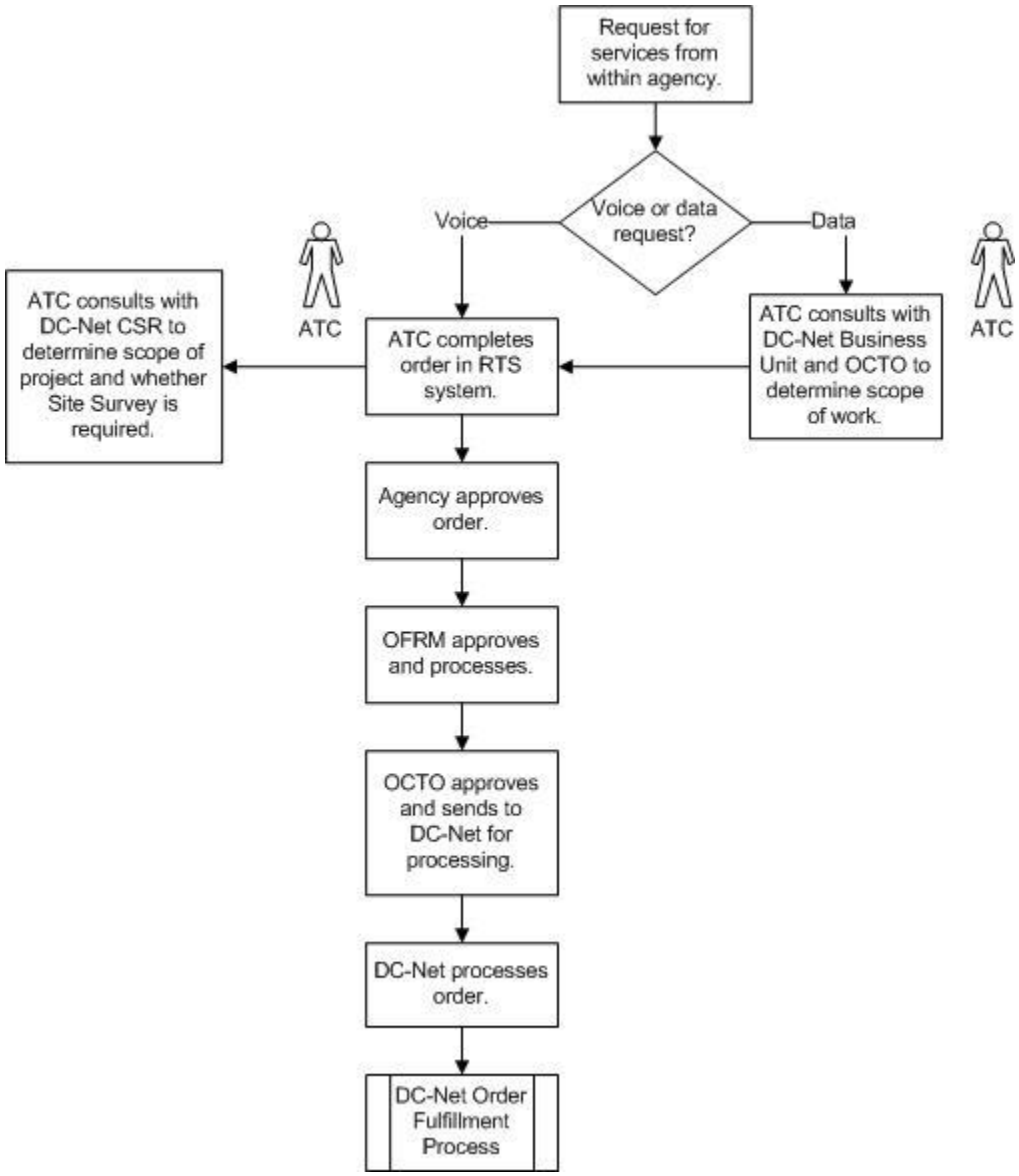
ATCs are responsible for submitting voice and data service requests through the RTS process. Orders are submitted through the RTS system and approved through the agency, the Office of Finance and Resource Management (OFRM), and OCTO before

coming to DC-Net for processing. Note: RTS Orders with incorrect pricing, product codes, or addressing, or not enough information may be rejected by OCTO or DC-Net.

For voice service requests, ATCs consult a DC-Net Customer Service Representative (CSR) to determine whether the scope of work requires a site survey. Standard moves, adds, and changes do not require a site survey. If the work involves 10 or more phone lines, new lines, a service or equipment upgrade, or other special circumstances, a site survey is required. For more information, see Professional Services.

Because data service requests involve cabling and data electronics work, DC-Net treats all data service requests as a significant project. ATCs work in consultation with the DC-Net Business Unit and OCTO for assistance in completing the project order.

Figure 5: Central Pay Process

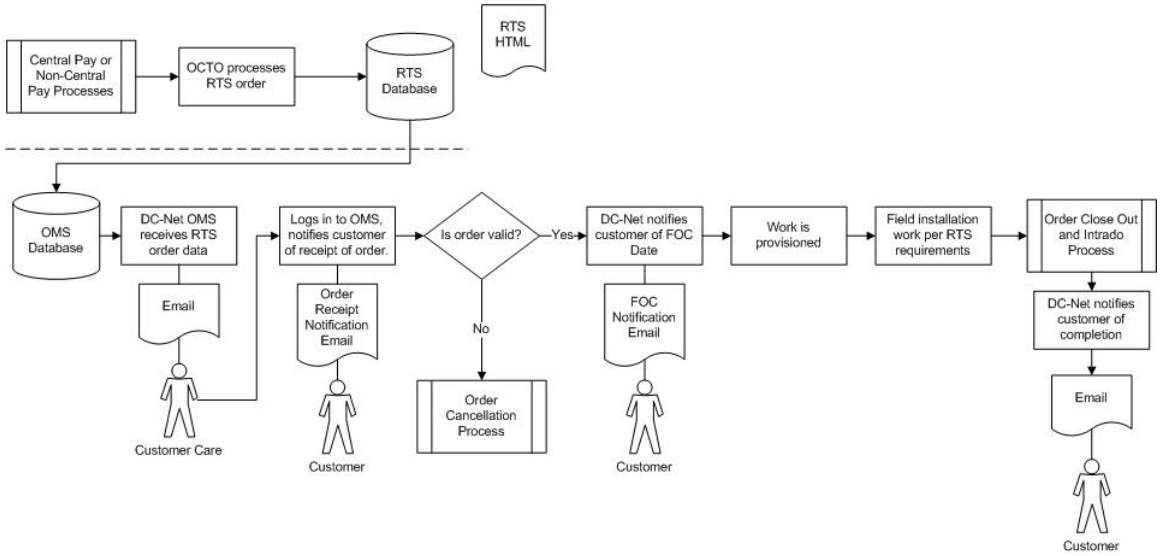


Order Fulfillment

The standard voice order for a move, add, or change takes 10 business days to process from the time DC-Net receives the order. Customers receive receipt notification of the order, the Firm Order Commitment (FOC) date, and a Completion Memo.

Data orders depend on the scope of the project and are determined during consultation with OCTO and DC-Net.

Figure 6: Order Fulfillment Process



Getting Help

The DC-Net Support Services staff are knowledgeable, industry trained professionals that can assist you with:

- **Trouble issues** (available 24 hours a day, 7 days a week)
- **Product information and service order requests** (available from 8:30 am to 5:30 pm Monday through Friday)

Call 202-715-3733.

When you place a help desk request, a trouble ticket is generated and passed to the responsible team in DC-Net. You are then contacted regarding the status of your request and its final resolution. Non-emergency requests during off hours are handled during the next business day. Emergency requests during off hours are handled in coordination with the DC-NOC within two hours.

Tier 1 – 3 technical support is standard for all voice, wireless access point, and video teleconferencing services on supported endpoints. Ask for information regarding telephone moves, adds, and changes.

- Voice Tier 1 Assistance – Non-critical issues. Field technicians are available during work hours.
- Voice Tier 2 and 3 Assistance – After hours support. Inside voice and data engineers and select group of field engineers are available 24 x 7.

Data issues are forwarded automatically to the DC-NOC, which monitors the network 24 x 7 and provides immediate response along with DC-Net Tier 3 network engineering support.

Glossary

Analog – A representation of data through continuously varying physical qualities, such as sound waveforms. Analog implies a continuous signal in contrast with digital.

Digital – A representation of data in a series of ones and zeros that can be read by computers.

ISDN BRI (Basic Rate Interface) is a standard Integrated Services Digital Network (ISDN) service used for small scale business Internet connections. ISDN is a legacy, circuit-switched system that integrates speech and data on the same lines. BRI is made up of one or two 64 Kbps B-channels and one 16 Kbps D-channel. An ISDN BRI provides two 64 Kbps digital channels to the user. These can simultaneously receive or transmit any voice, data, or video digital signal.

MPLS – Multiprotocol Label Switching. MPLS is a data packet forwarding technology with improved forwarding speed of routers by using labels to make data forwarding decisions. DC-Net uses MPLS to route VoIP calls across its network.

On-Net – A location that has DC-Net equipment.

PBX – Private Branch Exchange. A PBX is a private telephone network usually used within an enterprise. DC-Net uses PBXs to manage calls across the network among District government agencies.

Unified Communications – The integration of the delivery of real-time communication services such as IP-based telephony, video conferencing, instant messaging, and presence information with non-real-time communication services such as unified messaging.

VLAN – Virtual Local Area Network. A logical grouping that identifies sets of devices (computers, phones, video conferencing) which may or may not be at the same location but have access to a particular communications channel and a particular type of access.

VoIP – Voice over Internet Protocol. VoIP allows telephone calls to be made over computer networks like the Internet. It converts analog voice signals into digital data packets and supports real-time, two-way transmission of conversations using Internet Protocol (IP).

VPN – Virtual private networks (VPNs) use a public telecommunication infrastructure to provide remote offices or individual users with secure access to their organization's network. A VPN provides your organization with the same capabilities of a system of owned or leased dedicated lines, but at a much lower cost.

Wi-Fi – Wireless technology build upon IEEE 802.11 standards. Wi-Fi enabled devices (such as a personal computer, smartphone, or video game console) can connect to the Internet when within range of a wireless network connected to the Internet in a “hotspot” area.

Index

W